Valerie May — fifty years of phycology*

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Abstract

King, Robert J.[1] *& Briggs, Barbara G.*[2] *([1]School of Botany, University of New South Wales, Kensington, Australia 2033; [2]National Herbarium of New South Wales, Royal Botanic Gardens, Sydney, Australia 2000) 1988. Valerie May — fifty years of phycology. Telopea 3(2): 273–279.* — The career of Valerie May (Mrs. E.H. Jones) is outlined in a paper to mark her retirement. A list of publications is accompanied by a review of her pioneering studies in the systematics of Australian marine algae, the control of toxic freshwater cyanobacteria (blue-green algae), and changes in algal floras following environmental changes resulting from coastal sewage outfalls or the damming of rivers.

Studies of the history of phycology in Australia have recognized three periods, corresponding with collections from early expeditions, collections by resident Australian naturalists with their description by British and European phycologists, and studies this century by Australian phycologists (Womersley 1959, 1984; Ducker 1981). This last period commenced with studies by gifted amateurs, particularly A.H.S. Lucas, but has been actively pursued since the mid-1930s by university-trained phycologists. Valerie May was in the vanguard of this group.

Valerie May began her undergraduate studies at the University of Sydney expecting to major in Chemistry, but Botany, taken as a 'fill-in' subject, soon became her major interest. Her undergraduate studies led to First Class Honours in 1936 and she won all the Botany prizes along the way. When she graduated everyone said there were no jobs in her chosen field of algal studies but she resolved to work on algae until she starved: fortunately she never found it necessary to return to chemistry for a livelihood.

The general state of phycology in Australia when Valerie May commenced her studies can be judged by a comment of Lucas (1936): "During the present century practically the only additions made to our knowledge of Australian Algae have been made in the papers published by myself in the Proceedings of the Linnean Society of New South Wales." There was no guidance in phycology in the Botany Department at Sydney or indeed elsewhere in Australia at that time but Valerie was permitted to work for her honours and M.Sc. on the life-history of *Ectocarpus* (May 1939b) and on developing keys to the green and brown marine algae (May 1938a, 1939a). These keys were not major taxonomic revisions but rather drew together the vast taxonomic literature into a readily available and coherent form, and perhaps more importantly they were in

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English. Much later on this approach was extended to cover the red algal genera (May 1953a, 1965a) and finally the red algal species (May 1965b).

After graduation Valerie held Sydney University Scientific Research and Commonwealth Research Scholarships and then a Linnean Macleay Fellowship of the Linnean Society of New South Wales. It was symptomatic of the scant regard for phycology that, with the appointment of a new Professor and changed departmental priorities, she was required to turn from her algal work for two years to do surveys of mistletoes (May 1941) and work on drought resistance in higher plants (Ashby & May 1941). Another sign of the times was in 1940 when she advised the scholarship authorities of her forthcoming marriage to Ern Jones, who later became a senior staff member of the Faculty of Dentistry in the University of Sydney. She was firmly told that, as a married woman, she would not be eligible for renewal of her scholarship, and indeed that such a development made them doubt that they had been wise to appoint her in the first place.

By late 1940, CSIR, the forerunner of CSIRO, under pressure of wartime needs, sought to develop an agar industry for medical and food requirements (Ferguson-Wood & May 1944). A hectic period followed. Although based at CSIR Division of Fisheries, Cronulla, Valerie spent much time in Queensland and New South Wales on fieldwork by day and working long into the night identifying the collections she and others had made. An industry was established that was viable, at least in the short term, but high labour costs and changed needs prevented its continuation after the war; also the then known suitable algal populations were declining. As a result of these applied studies a monograph on the algal genus *Gracilaria* was published (May 1948b), and the series 'Studies on Australian Marine Algae I–VI' commenced (May 1944–1951).

At about this time Valerie arranged to borrow the large and important collection made by A.H.S. Lucas. Lucas, one-time headmaster at Newington College and later the Sydney Grammar School, had undertaken the honorary curatorship of the algae in the herbarium of the Sydney Botanic Gardens in 1899 (Lucas 1937). After his retirement, at the age of 70 in 1923, he devoted his prodigious energy almost entirely to phycology. He collected all over Australia, with major expeditions to W.A. when in his mid-70s, to the Great Barrier Reef at the age of 78, and to Lord Howe when he was 80. He began work on the handbook of the seaweeds of South Australia in 1935 and the first volume was published on the day he died at age 83, in 1936 (Cortis-Jones 1937). His main collection was bequeathed to the Commonwealth of Australia and consisted of about 5000 specimens. At the time that Valerie arranged for its transfer, the collection had not found a permanent home and was sitting, uncurated, in the corridors of CSIR's offices in Canberra. The collection was moved from the Cronulla laboratories to the National Herbarium of New South Wales when phycological work was no longer part of CSIR's priorities. The Lucas algal collection is a major resource and many research workers have been able to refer to his collection in its more accessible location in Sydney.

Valerie had been a frequent visitor to the National Herbarium of New South Wales during her honours year and later during her tenure with CSIR. While her four children were young, Valerie worked at the herbarium on a part-time basis but without any official position or salary. In 1960 she was appointed as Honorary Custodian of Cryptogams. This gave only a meagre fee as remuneration and no security of tenure, but she continued in this position (later retitled Honorary Phycologist) until the end of 1986. The position was set up to

give facilities and some assistance to a botanist in this field, and was additional to the regular staff. In practice, Valerie mostly worked beyond the requirements of a fully paid position, maintained an active program of fieldwork, and dealt with a constant flow of specimens for identification.

The early work was strictly marine with an emphasis on the Rhodophyta: the census and key to the species of the Rhodophyta of Australia (May 1965b) summarized much of her previous 15 years of work. Later Valerie diversified her interests by extending into the freshwater environment. Early in the 1960s she was asked by the then Director of the Gardens, Knowles Mair, and veterinarian Eddie McBarron to respond to a new challenge: stock deaths due to blooms of blue-green algae in farm dams. She identified the organisms, worked with chemists to determine the conditions in which blooms occurred, and adapted and tested methods of control (May 1970b, 1971, 1972, 1974, 1976c, 1978a, 1978b, 1980a, 1981a, 1981c; May & Baker 1978; May & McBarron 1973; McBarron & May 1966). Valerie has been widely recognized for her pioneering work in this field. As a result she has been invited to speak at, or co-convene, international symposia (e.g. in 1980, The Water Environment: Algal Toxins and Health, Dayton, Ohio, USA and The International Symposium on Inland Water and Lake Restoration, Portland, Maine, USA). She has contributed also to many Australian conferences.

In addition, Valerie has undertaken joint work, as shown by her publications, with zoologists, veterinarians, statisticians, fisheries biologists and ecologists in universities and State and Commonwealth organizations. She has been consulted extensively about problems of water quality, especially blooms toxic to humans and stock.

Phycology has led her into unusual places and into studies of the interactions of algae and other organisms. She has cooperated in research on the effects on algal growth of removing animal predators from rocky headland sites (May *et al.* 1970), algal epiphytes, sea-grasses (May *et al.* 1978) and subtidal floras (May & Larkum 1981) and, in the terrestrial sphere, has studied the effects of algal epiphytes on the growth of *Macadamia* trees in plantations. She has investigated problems and identified specimens for the police, for poultry farmers and in relation to questions about safety of both mines and dams.

Concern with deleterious environmental influences affecting marine or freshwater algal populations has been the principal theme in her recent work. Changes in algal floras at coastal sewage outfalls have been monitored (May 1981b, 1985b), as have seasonal and annual changes in floras of rivers and dams (May & Powell 1986). By seeking baseline data before dams and outfalls are built, and by monitoring over extended periods, Valerie has again done pioneering work relevant to present day environmental concerns about water quality and eutrophication.

In addition to her scientific contribution, Valerie has played her part in the important task of making the general public aware of marine plants and their role in the environment: mangroves (May 1967); seaweeds (May 1976b); water resources (May 1982a).

In 1987 Valerie May was appointed as an Honorary Research Associate of the Royal Botanic Gardens, Sydney, and she continues to work towards further publication of her research on floras of inland rivers and dams.

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(Photograph F. Baverstock)

Mrs Valerie Jones

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